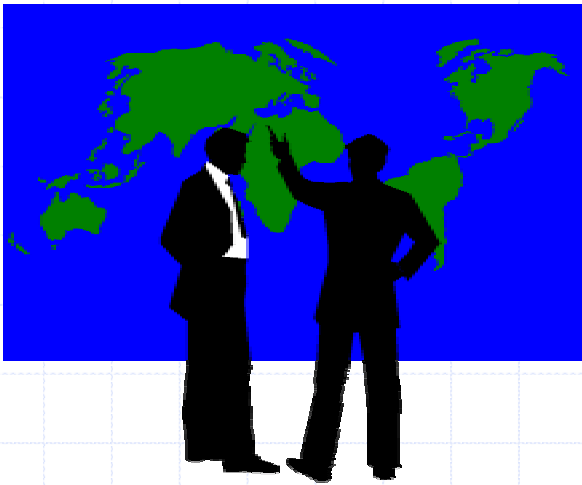




U.S. Department of Energy

OAK RIDGE NATIONAL LABORATORY

CHP Subcontractors Coordination Review Meeting



April 22, 2004
Oak Ridge National Laboratory's
Washington D.C. Office

Name of Contract and Subcontractors

Targeted CHP Outreach in Selected Sectors of the Commercial Market

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Description of Tasks

- Currently CHP is Tied to Traditional Applications in:
 1. Industrial,
 2. Hospital, and
 3. Universities
- For CHP to Expand – Best New Growth Sectors Need to Be Found

Description of Tasks

- Target Three Important New Areas
 1. Smaller Medical Applications
 2. Educational Buildings (K-12)
 3. Data Centers/Server Farms/Telecom Switching Centers

Description of Tasks

- Market study report on the three selected sectors.
 - Market Study Targeted Toward Developing Outreach Message(s) Most Inclined to Trigger Interest Within Each Sector.

Description of Task(s)

- Market study report on the three selected sectors.
 - Determined the overall size and detailed demographics of each segment
 - Identified professional organizations, and if possible the largest market participants,
 - Determined current market issues, and changes in the market
 - Determined the preferred information sources, decision making and buying process for equipment

Description of Task(s)

- The report of includes specific information on
 - what type of building systems these segments currently prefer,
 - who the major facility owners are in these markets,
 - profiles of the major operating issues in these markets, and
 - how best to reach decision makers within these segments.

Description of Progress Against Task(s)

- Market study completed in 2003.
- Market Study Delivered to ORNL
 - Distribution at ORNL/DOE Discretion
 - Study Delivered by PDF and in Hard Copy Form

FY03 Deliverables and Availability

- Report
 - 160 Pages
 - 101 Figures
 - 30 Tables
 - 127 Footnotes
- Awaiting Publication
 - Some Examples of the Available Data Follow



Energy Resources Center

Targeted CHP Outreach in Selected Sectors of the Commercial Market

Prepared for

**U.S. DEPARTMENT OF ENERGY
OAK RIDGE NATIONAL LABORATORY
P.O. BOX 2008, BLDG. 4500N
OAK RIDGE, TN 37831-6192**

Prepared by

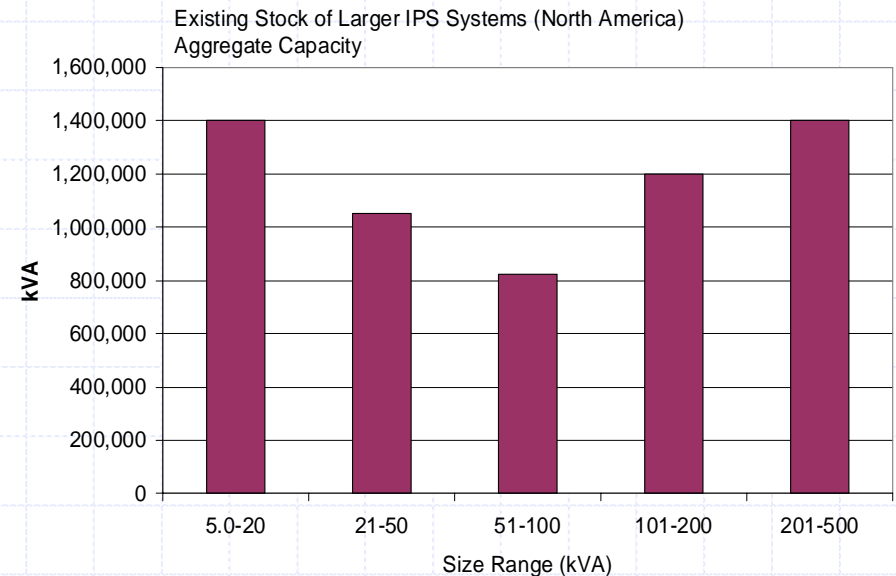
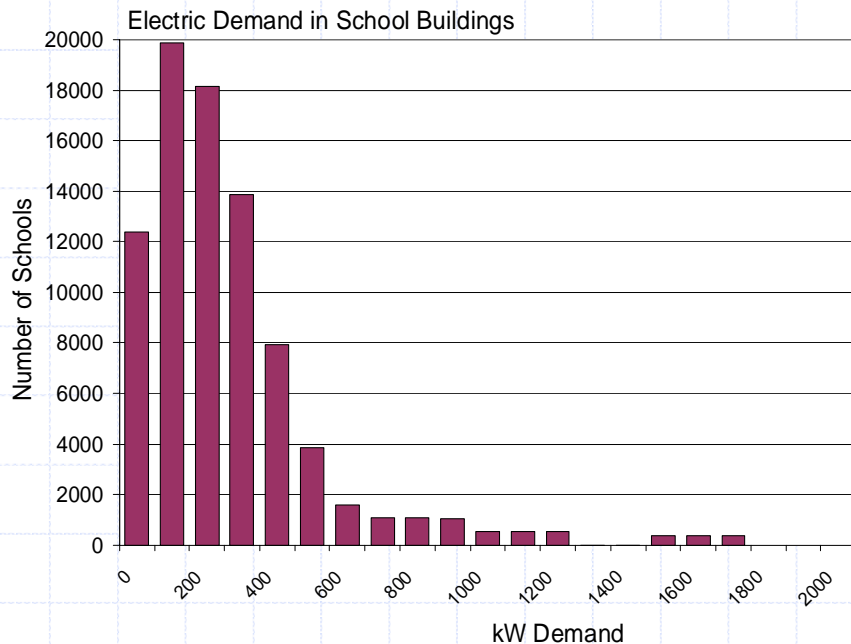
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Chicago, Illinois 60607-7054
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Description of Progress Against Task(s)

■ Adaptability of Facilities to CHP

■ Examples Shown

- Electric demand in schools
- Critical electric demand in data centers

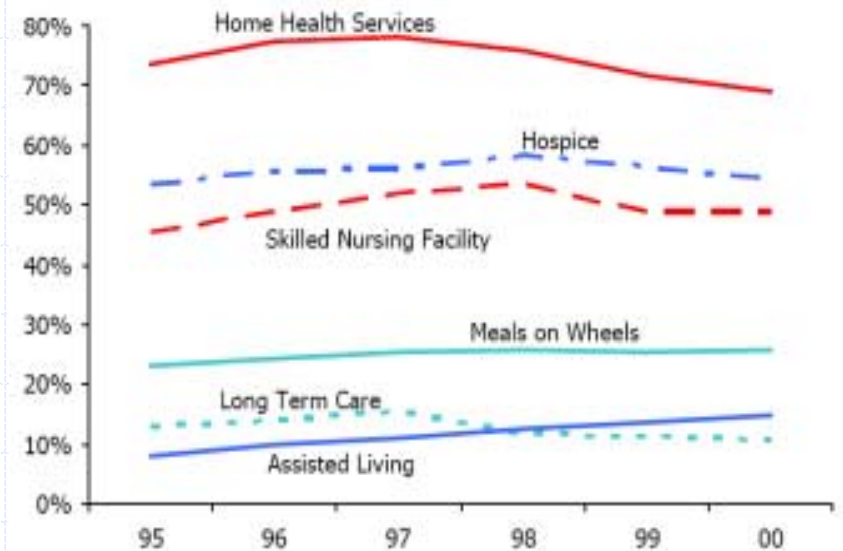
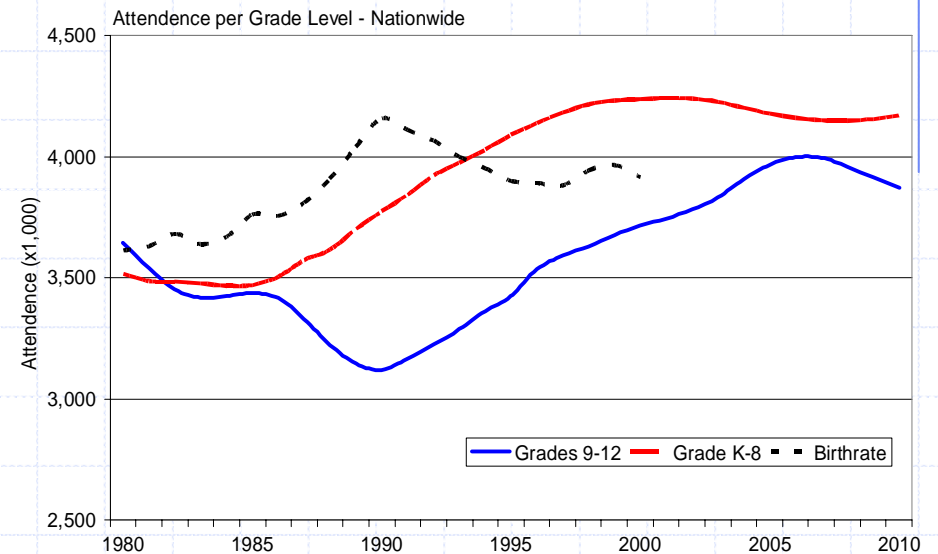
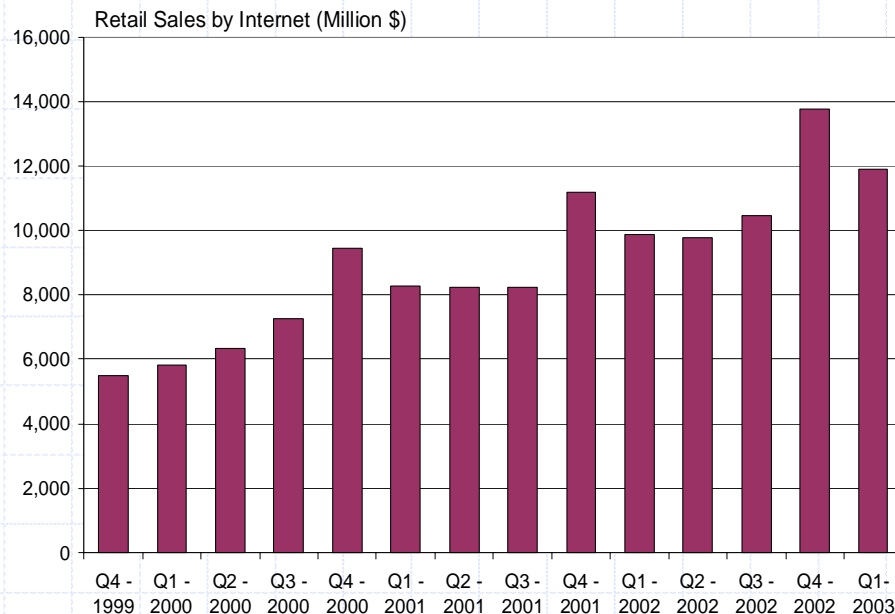


Description of Progress Against Task(s)

■ Market Growth

■ Examples Shown

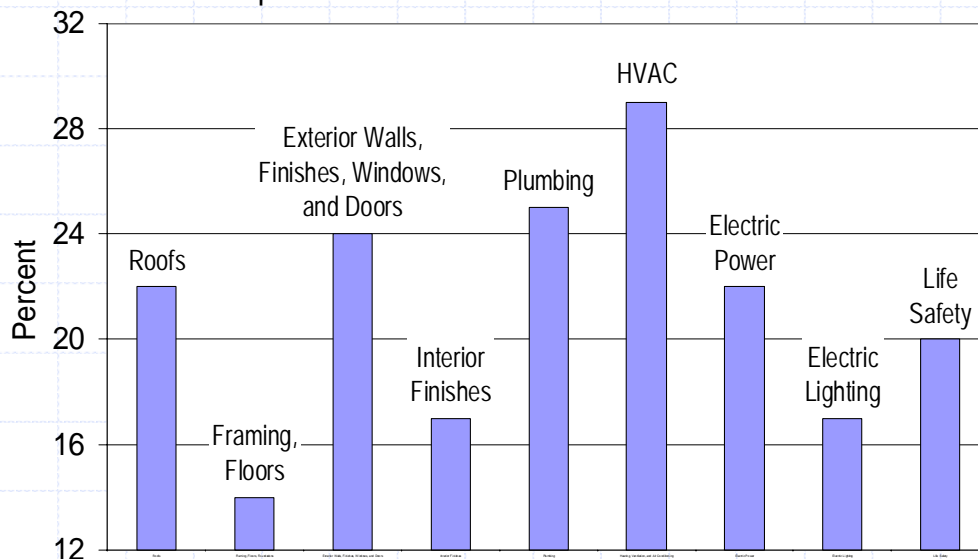
- Historic trends – schools, medical segments, internet commerce



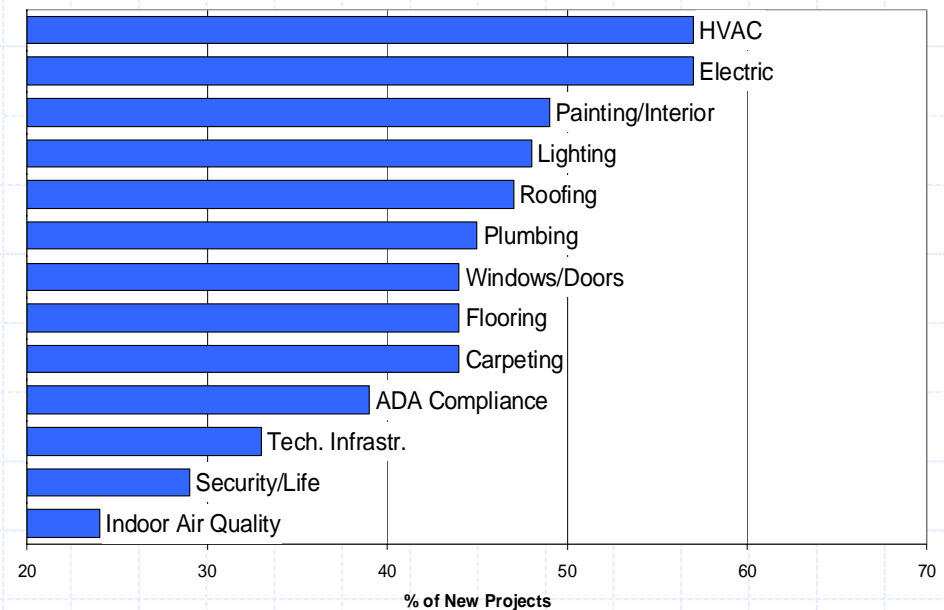
Description of Progress Against Task(s)

- Current Issues in Sector Facilities
- Examples Shown
 - Facility issues and current rehabilitation focus in school facilities

Percentage of Schools Reporting Inadequate Features in Need of Repair



Most Popular Retrofit Projects

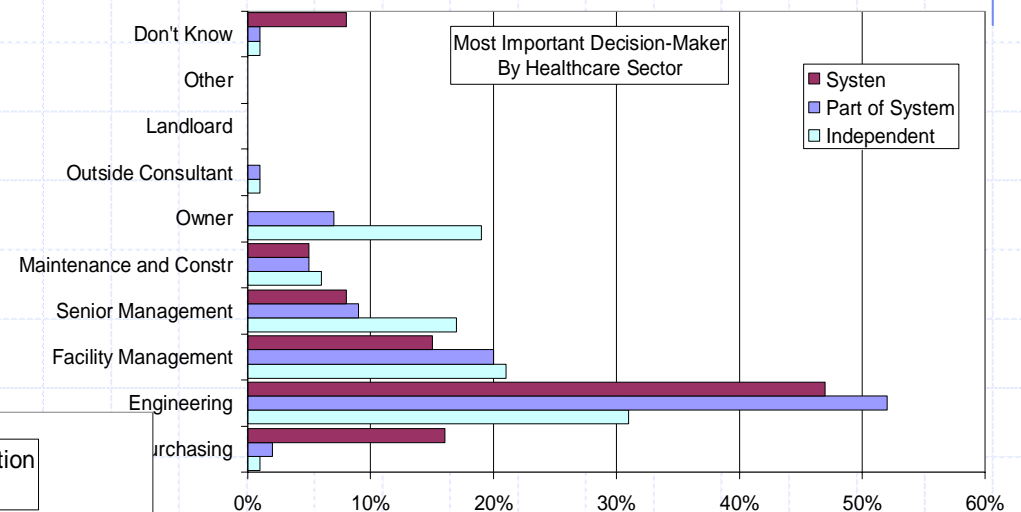
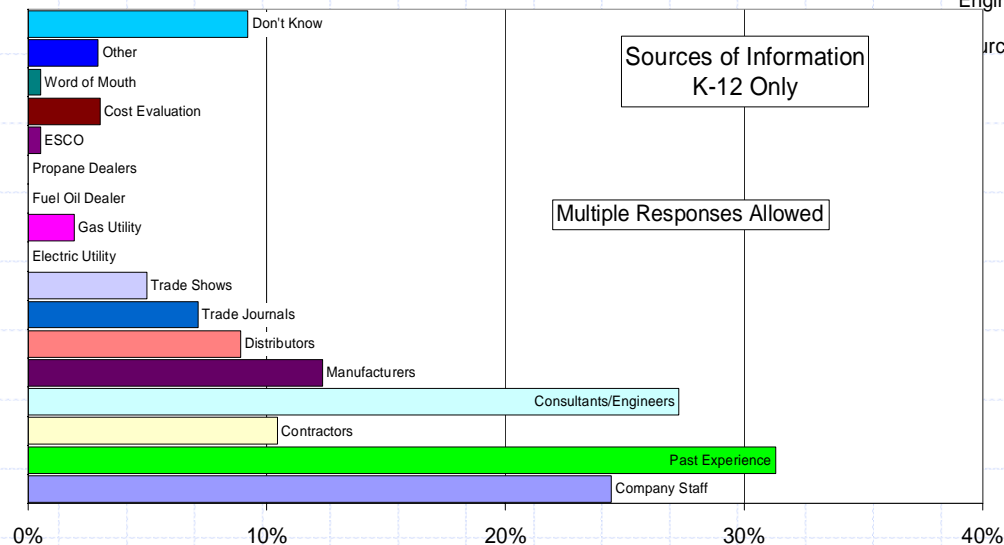


Description of Progress Against Task(s)

■ Important Decision Makers and Influences

■ Examples Shown

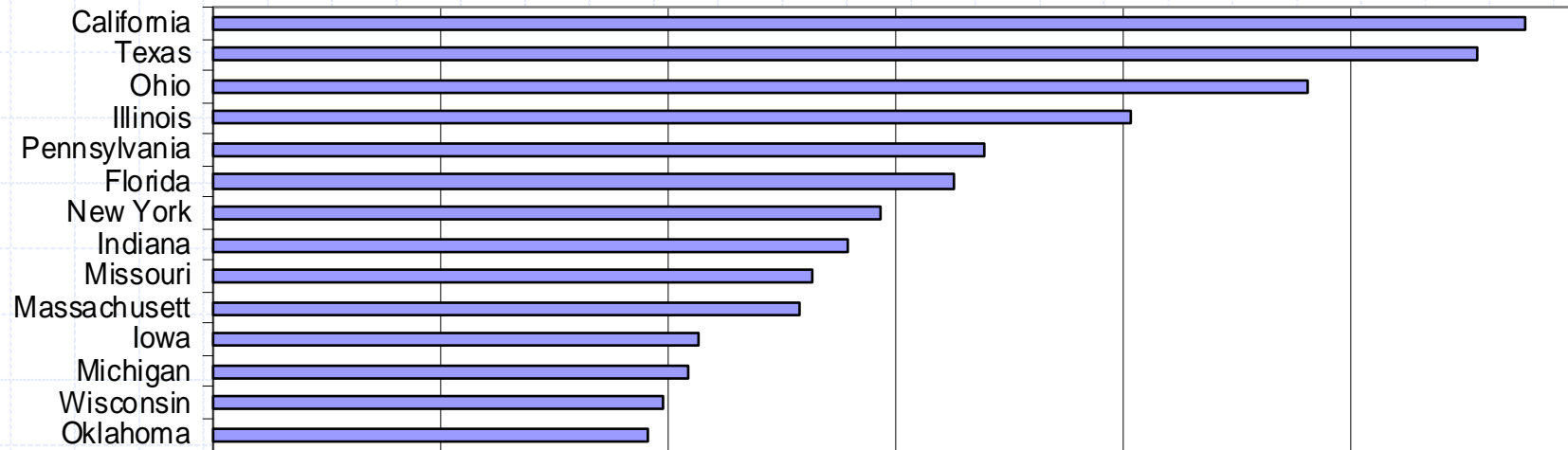
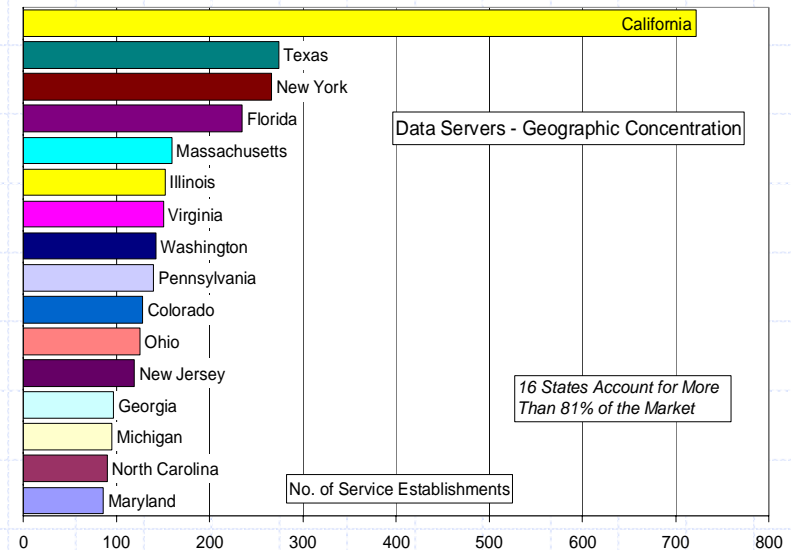
■ Decision Makers and Influencers - Schools



Description of Progress Against Task(s)

■ Market Regionality

- Examples Shown—
Data Centers and
Nursing Homes by
State



Description of Progress Against Task(s)

- Determining Major National Players
- Examples Shown
 - Top 50 School Districts
 - Top 50 Elder Care Chains

Name of District	City	State	County	Number of Students
				10,962,476
New York City Public Schools	New York	NY	Kings	1,075,710
Los Angeles Unified	Los Angeles	CA	Los Angeles	710,007
Puerto Rico Dept of Education	Hato Rey	PR	San Juan	613,019
City of Chicago School District	Chicago	IL	Cook	431,750
Dade County School District	Miami	FL	Dade	360,136
Broward County School District	Fort Lauderdale	FL	Broward	241,094
Clark County School District	Las Vegas	NV	Clark	217,526
Houston Independent School District	Houston	TX	Harris	209,716
Philadelphia City School District	Philadelphia	PA	Philadelphia	205,199
Hawaii Department of Education	Honolulu	HI	Honolulu	185,860

CHAIN / HEADQUARTERS	Current Rank	Tax Status	Total NHs	Total Lic. Beds	Avg. Beds/NH	# of States
Beverly Enterprises / Fort Smith, Ark.	1	FP	541	59,963	110.8	30
Mariner Post-Acute Network / Atlanta, Ga.	2	FP	425	50,830	119.6	29
Integrated Health Services / Owings Mills, Md.	3	FP	335	40,096	119.7	34
ManorCare / Toledo, Ohio	4	FP	296	40,046	135.3	31

FY03 Deliverables and Availability

- Summary Findings
- Took Initial Market Sector Suggestions and Developed Specific Focused Sub-Sectors and Detailed Messages

Original Target Market Segments

Original Segment	Smaller Educational Facilities	Smaller Healthcare Facilities	Data Centers/ Server Farms / Telecom Switching
Original Definition	Smaller Schools than College Campus's which Commonly Use CHP Today	Smaller Facilities than Major Hospitals which Commonly Use CHP Today	Facilities Housing Large Electronics Systems & Having High Power & Cooling Loads

RESULTS - Focused Market Segment Findings

First Focused Segment From This Study	K-12 Buildings >400 kW in Demand – Mainly High Schools	Nursing Care Facilities	Data and Internet Facilities Employing UPS Systems >100 kW
No. of Facilities	7,400	15,600	14,000
Focused Segment Size	11.9 GW	5.2 GW	2.6 GW
Projected Growth	350 MW/Yr.	150-200 MW/Yr	Minimal – Near Term
Important Outreach Message	Emerg. Pwr/Safety Public Disaster Shelters Lower Operating Cost	Reliable Power/Cooling Non-Evacuate Patients Lower Operating Cost	Reliable Power/Cooling Consistent Volt. & Freq Lower Operating Cost
CHP Size Req.	200-400 kW	100-300 kW	100-500 kW
Cooling Issues	Central Chilled Water	Rooftop Retrofits	Rooftop Retrofits
Market Concentration	High	Very High	High
Contacts List	Developed	Developed	Developed

2 nd Focused Segment From This Study	None	Laboratory Facilities	"Central Offices"
No. of Facilities		10,500	20,000
Focused Segment Size		NA	~ 5 GW
Projected Growth		4% in Facilities	Moderate – Near Term
Important Outreach Message		Reliable Power for Disaster Operations Assured Refrigeration Pathogen Containment Lower Operating Cost	DC Power Reliable Power/Cooling Consistent Voltage Red. Pwr Cond. Equip Lower Operating Cost
CHP Size Req.		NA	100-250 kW
Cooling Issues			Low Cap. (30-50RT)
Market Concentration		NA	Very High
Contacts List		NA	Developed

Most Desirable States for CHP Systems

California Nevada Alaska New York	Illinois Vermont Massachusetts New Jersey	Connecticut Texas
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Table 1: Summary Findings

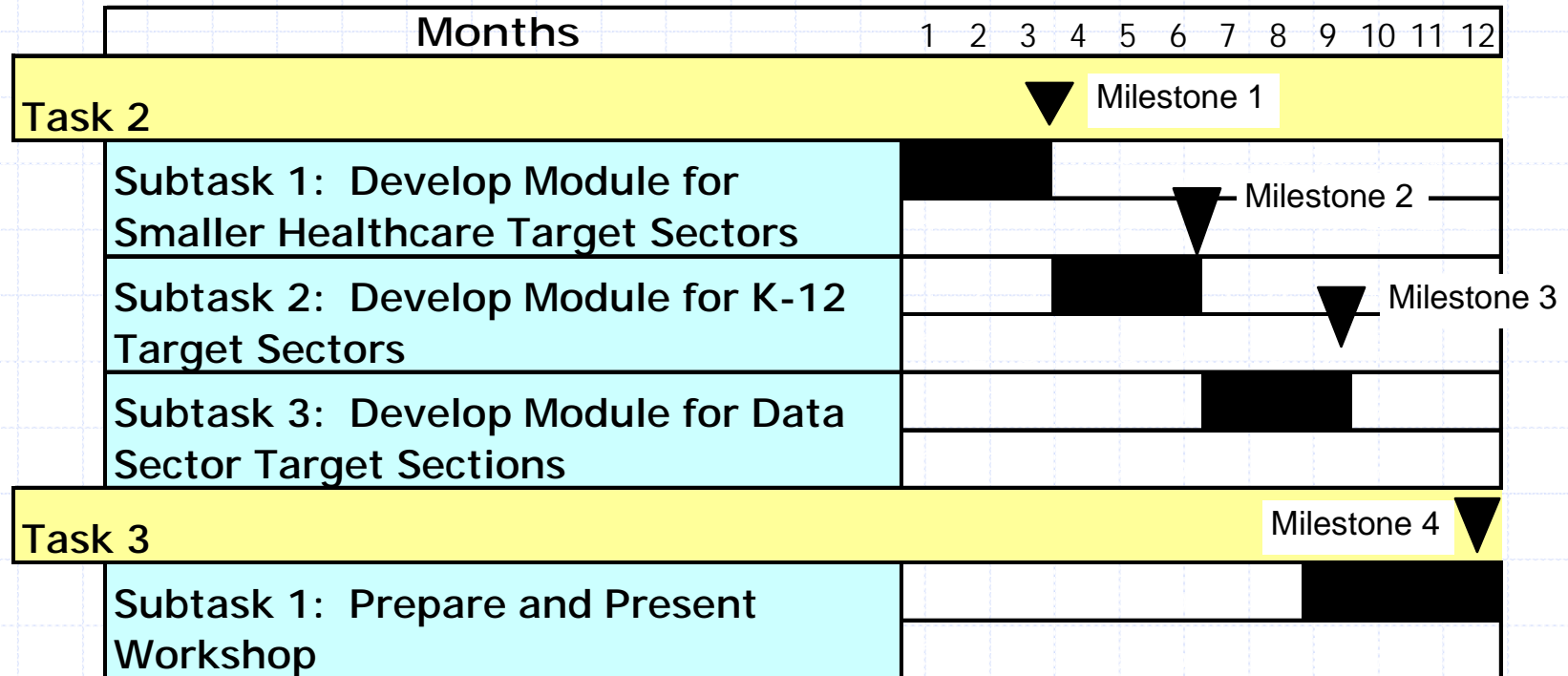
Coordination with Stakeholder Groups and Other Project Teams

- Stakeholder Coordination
 - CEFPI (Council of Educational Facility Planners International),
 - ASHE (American Society of Healthcare Engineers),
 - ASHRAE, (American Society of Heating, Refrigerating, and Air Conditioning Engineers)
 - ESC (Energy Solutions Center)
- Other Project Teams
 - Publication will Include Delivery of Material to Other CHP Centers

FY04-05 Timeline

- A Report Alone Will Not Do the Job
- Need to Roll Material Out to the Stakeholders
- FY04-05 Tasks
 - Develop 3 Workshop Presentation Packages
 - One for Each Vertical Market
 - Hold a *Train-the-Trainer* Session for the Regional CHP Center to Equip Them with the Materials and Background Information.

FY04-05 Timeline



Milestone 1 ORNL Review of Package 1

Milestone 2 ORNL Review of Package 2

Milestone 3 ORNL Review of Package 3

Milestone 4 Present Workshop

Questions?

